# FAA GENERAL AVIATION NEWS

JULY 1978

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**Problems of the high time pilot**

# FAA GENERAL AVIATION NEWS

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**July 1978**

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# The Hole Story

*How well do you "read sign" on the runway?*

A circular depression (or hole) merely a yard wide ordinarily would not amount to much in a broad open area of several dozen acres, but if it happened to make its appearance within a designated runway, the whole pattern of landing and takeoff operations at the airport could be altered, with some confusion resulting for those airmen who are unfamiliar with runway sign language.

Such an event occurred recently at Montgomery County Airpark in Gaithersburg, Md., on a busy Saturday morning when the pattern was buzzing with weekend traffic, mostly local and training flights. The day's activity was interrupted shortly after the pilot of a light twin, landing on the single, 4,700′ runway, experienced a sudden "Tilt" as his right wheel banged down hard and almost precipitated a ground loop at high speed. Fortunately he retained control of the aircraft and, after taxiing gingerly off the runway, stopped and got out to see whether the right oleo had gone flat.

The landing gear appeared to be perfectly normal and, after ascertaining that he had not bent his propeller, the pilot tied the aircraft down and went back to have a look at

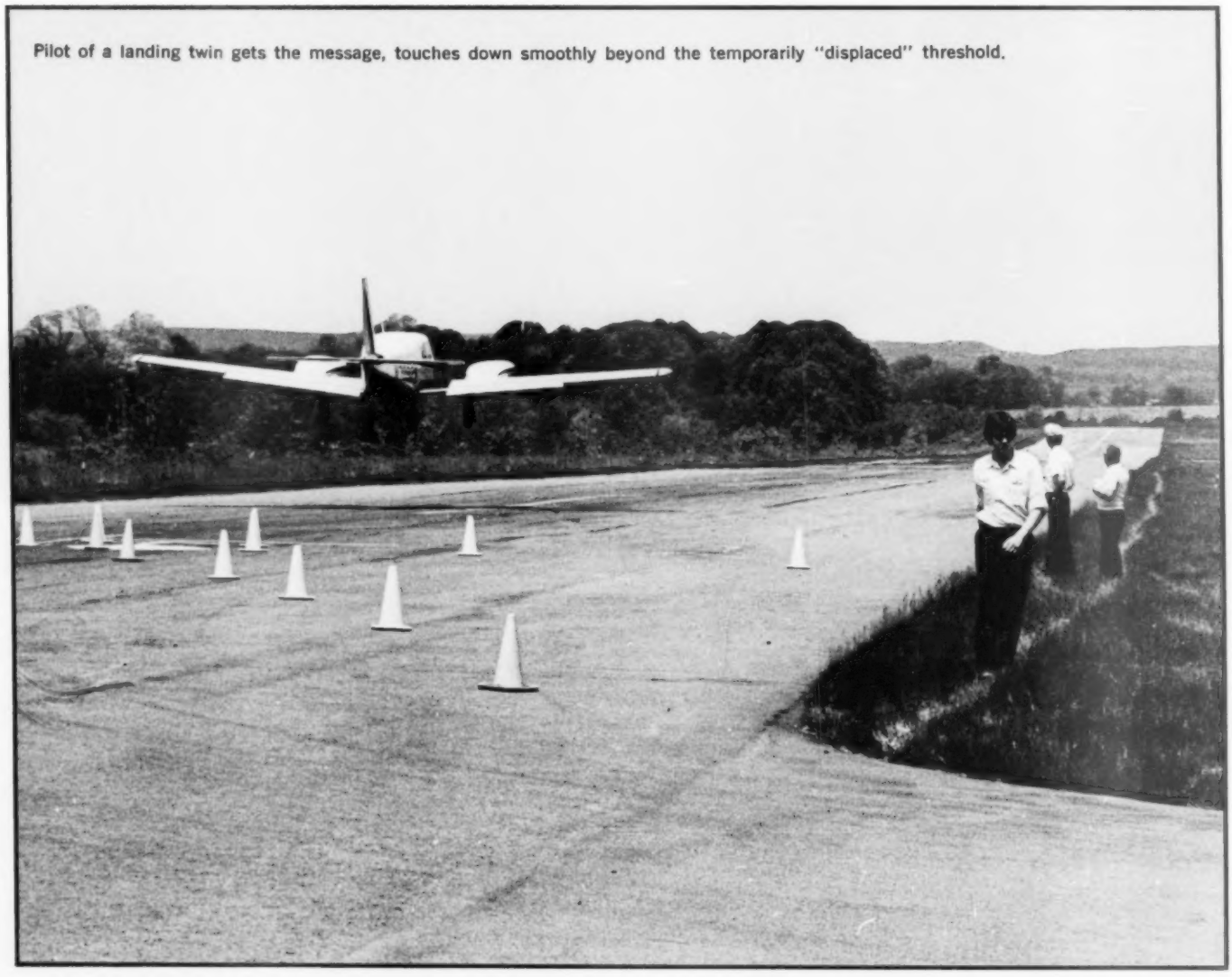
the runway, thinking that perhaps his wheel had pounded against a heavy stone or a piece of equipment. Eventually he discovered the Hole, just to the right of the centerline, about 800 feet from the approach end of the runway—a small concave break in the pavement. But when the pilot poked a stick down the center of the hole, he encountered nothing substantial below. It was evidently a cavity of undetermined depth. He went back to his plane and radioed the airport management.

The airport manager and several of his assistants came out to look at the hole and ponder over it. Further prodding with a pole failed to discover its depth; small pieces of dislodged pavement dropped through the opening and disappeared. The intriguing mystery of how such an apparently bottomless cavity could appear in the runway had to be thrust aside because of the urgency created by the potential danger to aircraft. The airport had to be closed temporarily —which would have meant inconveniencing quite a sky full of locally based aircraft —or the runway threshold had to be displaced. The airport management chose the latter course.

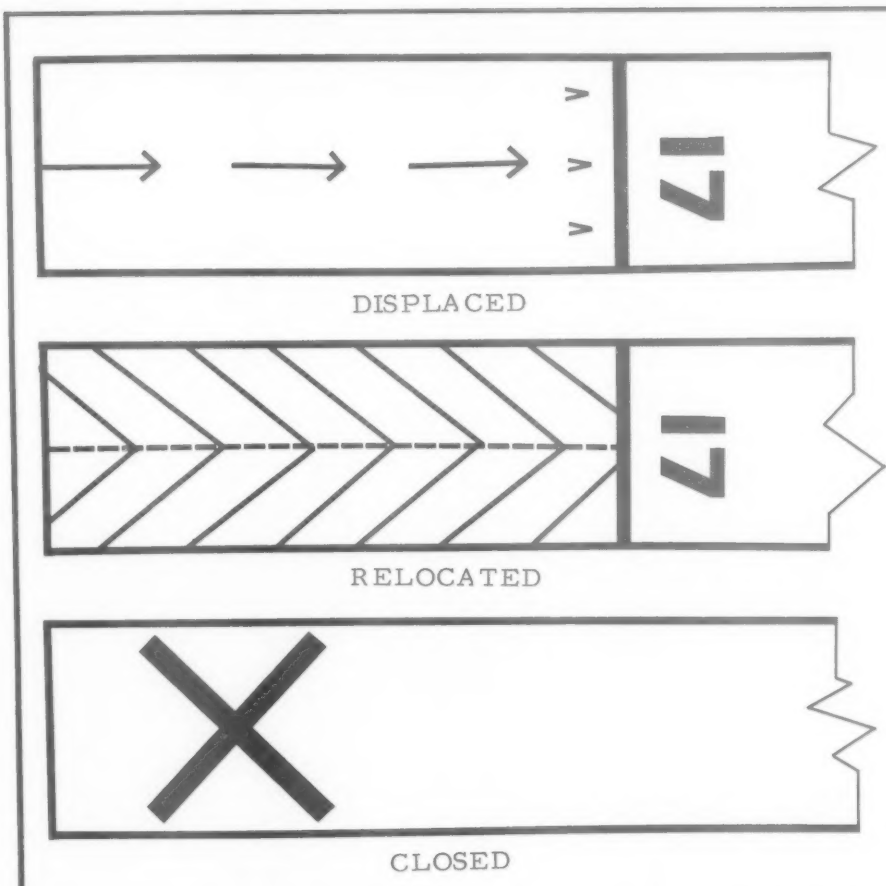
Virtually the entire staff, from flying instructors to line boys, were mobilized for action. Some were sent to round up paint, brushes and buckets: some to prepare a message for UNICOM and to contact FAA, about a NOTAM; others to check the runway for other signs of trouble, etc. There was no time to lose.

The presence of this Hole—not very wide but of unplumbed depth—had to be made known to every pilot who might be intending to land here, or who was planning to take off, and it had to be done in some orderly, effective fashion to prevent possible chaos. Fortunately, approved procedures exist for displacing thresholds; these were adapted to the situation. Before the morning was over the following steps had been taken:

- Red plastic cone-shaped markers (like those used in roadwork) were positioned around the damaged area of the runway to guide taxiing airplanes around the hole and to alert landing pilots of the problem.
- A white band was painted around the hole, with spokes running down into it to make it more noticeable.
- A white line was painted across the runway to indicate a "displaced threshold" with yellow arrows pointing to the new threshold.
- All runway edge lights were removed from the unusable portion of the runway in preparation for night traffic. The green threshold lights that mark the beginning of the runway were moved to a spot near the new threshold.
- An airport truck was positioned on the taxiway that leads from the ramp to the unusable portion of the runway, to keep uninformed pilots from taxiing out there for takeoff while painting was taking place. (The truck was later removed.)



Pilot of a landing twin gets the message, touches down smoothly beyond the temporarily "displaced" threshold.




**DEFINITIONS**

**Displaced Runway Approach Threshold.** A threshold that is located at a point on the runway other than at the beginning of the full strength pavement. The paved area behind the displaced runway approach threshold is available for the landing rollout or takeoff of aircraft.

**Relocated Runway Approach Threshold.** A threshold that is located at a point on the runway other than at the beginning of the full strength pavement. The paved area behind the relocated runway approach threshold is no longer available for the landing or takeoff run of aircraft.

**Note:** Displacement of the runway approach threshold may be required when an object that obstructs the airspace required for landing aircraft is beyond the airport authority's power to remove, relocate, or lower. Runway approach thresholds may be displaced or relocated for environmental considerations, such as noise abatement.

*For additional information request "Locating Runway Approach Thresholds", AC 150/5320-13, free from DOT/FAA Distribution Unit, M-443.1, Washington, D.C. 20590.*

• A request was forwarded to FAA to initiate a NOTAM (Notice to Airmen) announcing that the "first 1,000 feet of runway 32 are unusable." (Actually the hole was only 800 feet from the runway end but the 1,000 foot figure was used to be on the safe side.)

The first aircraft approaching to land bored in straight at the numbers until about 150 feet above the ground. At this point the pilot appeared to catch sight of something unexpected, as evidenced by a brief period of wobbly control of the aircraft, followed by a burst of power as a go-around was commenced. As the airplane began to climb the pilot was observed, microphone in hand, making a belated call to UNICOM. At his second approach he landed about 100 feet beyond the displaced threshold, started to make a touch and go, thought better of it and finally turned off on the last taxiway of the 4,700 runway. He then proceeded to taxi back to the displaced threshold and take off from that point, horsing the aircraft into the air somewhat prematurely but successfully.

The next two planes to land (flown by instructors with students aboard, as it happened) made their approach directly to the displaced threshold and landed uneventfully. Both used the full length of the runway to taxi back for takeoff, evidently aware that the absence of chevron markings signified a *displaced* rather than *relocated* threshold.

(The runway area behind a *displaced* threshold, while not suitable for touching down, may be used for taxiing or takeoff run or the landing roll-out when traffic is reversed. The area behind a *relocated* threshold is, normally, not suitable for aircraft use at all. Yellow arrows pointing to a white band indicate a displaced runway; yellow chevron markings signify a relocated threshold. See diagram.)

The next pilot to land was apparently so intent upon execution that he was unaware of the runway markings until he almost ran into the red cone-shaped markers around the Hole. He swerved abruptly to the left, almost ran off into the grass to the tune of screeching tires, managed to continue on down the runway with a wagging tail, braked to a stop, pulled off on the grass and stopped the engine so that he could come back and inspect the Hole. Bystanders filled him in on the procedures.

Most of the landings after that were made routinely, in accordance with the runway markings and instructions from UNICOM. But there were some interesting variations. One pilot, for example, touched down on the restricted segment, bounced over the red marker cones and settled down hard beyond the displaced threshold. Several pilots who landed in the marked off zone simply rolled out along the lefthand side of the runway.

The threshold displacement at Montgomery County Airpark was fortunately short-lived, and there were no accidents or injuries —thanks in large part to the prompt action taken by the airport management. Workmen soon discovered that the sinkhole was caused by settling of an old well—last vestige of the farm that had once occupied the land on which the airport stands. While there was considerable depth to the Hole, it did not extend out laterally any farther than the sunken surface, and it was quickly repaired. Some three tons of rock and dirt were poured into the gaping crevice and the top was resurfaced neatly.

Two days later hardly a sign remained of the Saturday morning confusion. But quite a number of pilots had absorbed a lesson on runway sign language which was to remain with them longer than anything they had read on the subject. ■

# Quick Reference Altitude Chart

## A visual display of altitudes and the flight rules that affect them

The Quick Reference Altitude Chart on the facing page has been designed to remind pilots of certain key FAA requirements at various altitudes of flight. These include the use of oxygen, transponders, and distance measuring equipment; altimeter adjustment; magnetic courses for VFR/IFR courses, etc. The data displayed is a depiction of eight FARs, in part or in whole: 91.24, 91.32, 91.33, 91.70, 91.97, and 91.181.

Note that the chart is applicable to the conterminous United States only. Certain other areas are excluded, including the Alaskan Peninsula West of longitude 160° 00'W. See AIM, Basic Flight Information and ATC Procedures.

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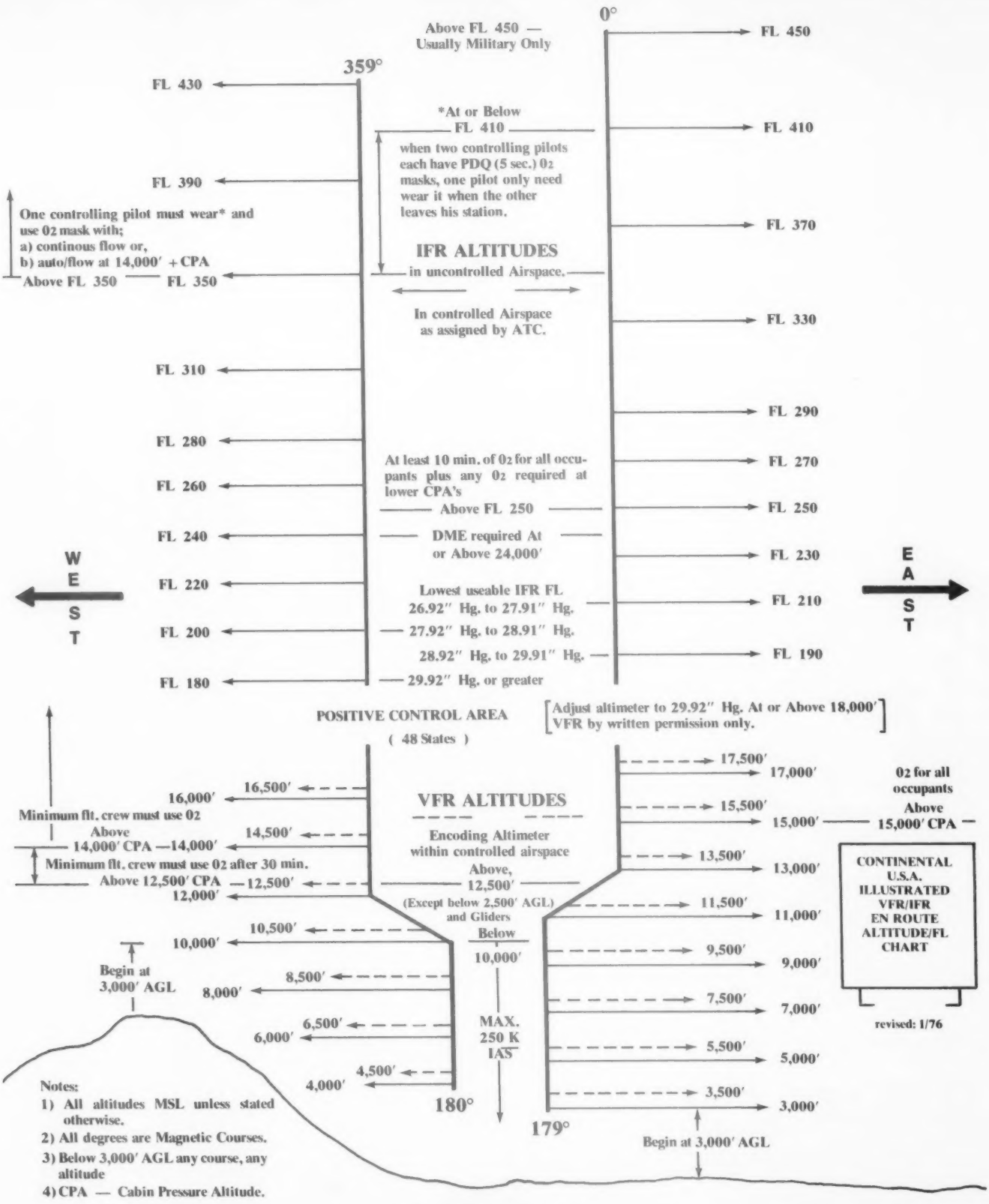


# Q.R.A.C.

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# Margin for Error

## How high-time pilots get into trouble

Do most accidents occur to low-time pilots? Does the likelihood of a pilot becoming involved in an accident decrease steadily in proportion to his experience?

Not necessarily so.

When you bracket experience groups against accident statistics you discover some surprising facts, such as the following:

- The greatest number, by far, of all accidents, and fatal accidents, occur to pilots who have logged between 1,000 and 3,000 hours.
- Fewer accidents occur to pilots with 50 hours or less than to pilots in any experience group except those with more than 8,000 hours.
- The curve of accident incidence consistently peaks first at the 101 to 300 hours group, declines, and then reaches its highest peak with the 1,001 to 3,000 hours group.

What can we learn from these figures about experience and accidents? For one thing it appears that the typical pilot exercises a good deal of caution until he or she logs about 100 hours. After this the pilot appears to relax his guard, and accident figures "balloon." Overconfidence very probably plays a major role in this phenomenon. But what can we say about the similar jump in accident figures that is seen in the 1,001 to 3,000 hour group?

An airman with over 1,000 hours of flight time is generally considered an experienced pilot. By this time, if he has been flying regularly, the flight operation has become almost as familiar to him as the operation of his car. His judgement has been honed to a fine edge by numerous in-flight decisions, and the multitude of cockpit duties have fallen into a familiar routine. Regulations and procedures have been memorized. Is he then victimized only by

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"unavoidable accidents?" By emotional flare-ups, or by overconfidence? Or does he succumb to the same type of accident that is common to lesser experienced pilots?

A case by case examination of the 141 fatal accidents which occurred to pilots in the 1,001 to 3,000 hour group in 1975 suggests that the pattern of accidents for these pilots does not vary significantly from the overall fatal accident pattern.

The leading type of fatal accident—uncontrolled collision with the ground or water—accounted for 17% of all accidents in the 1,001 to 3.000 hour group. But it was also 17% for the pilot population at large. Engine failure accounted for 14% of the experienced pilots' accidents; overall it was 12%. In each type of accident the two percentile figures were too close together to indicate any significance.

This similarity is difficult to understand, since it is obvious that the pilot with several thousands of hours of air time is bound to be more proficient in the cockpit and more familiar with aircraft operation than the low time pilot. One possible explanation is that as experience and skill accumulates, the pilot *unconsciously reduces his operational margin for error,* and that this margin becomes so thin that any unusual set of circumstances can break it down. Like the high wire performer in the circus who first performs with a safety net, and later without it, he may fall into the habit of staking his life on doing everything exactly right.

Consider a recent accident near Albany, N.Y., involving a 48-year old pilot with 2,300 hours of flight time, including over 1,000 hours of military experience. He owned a Beech *Travel Air,* which he used frequently in the conduct of his insurance business. He was in the habit of flying over his home on his return trips and circling the house, to alert his wife that he was about ready to be picked up at the airport. On his last flight, with four associates on board, he made his customary circle over the house at an altitude estimated by witnesses on the ground to be approximately 500 feet. His wife came out of the kitchen door and waved an acknowledgement. The pilot dipped his wing in salute, as was his habit, and at that point the aircraft stalled and crashed into a dense clump of woods. killing all on board.

The maneuver was technically performed at a legal altitude, inasmuch as the area was not heavily populated, and an open field which could have served as an emergency landing spot was available nearby. The pilot had flown over his house and dipped his wing in 'his manner "hundreds of times." according to his wife, without any difficulty whatever. The light twin-engined aircraft had recently undergone an annual inspection, and the accident investigation disclosed no evidence of mechanical failure that could have contributed to the crash, other than an excessive gross weight of 150 lbs. One witness on the ground said that she had heard one engine misfire, but others stated that the engines sounded perfectly normal. The pilot was known to be a skillful, reliable flyer who had never before been involved in any kind of accident

**SELECTED ACCIDENT DATA ALL OPERATIONS**

| | 1976 Accident Records | | 1975 Accident Records | |
|---|---|---|---|---|
| | Total | Fatal | Total | Fatal |
| 0-25 Hours | 149 | 10 | 164 | 16 |
| 26-50 Hours | 175 | 18 | 169 | 20 |
| 51-100 Hours | 311 | 39 | 324 | 38 |
| 101-300 Hours | 762 | 116 | 766 | 127 |
| 301-500 Hours | 404 | 74 | 404 | 66 |
| 501-1000 Hours | 547 | 109 | 564 | 92 |
| 1001-3000 Hours | 890 | 154 | 901 | 138 |
| 3001-5000 Hours | 383 | 64 | 356 | 49 |
| 5001-8000 Hours | 227 | 35 | 252 | 45 |
| 8001-10,000 Hours | 77 | 14 | 87 | 17 |
| over-10,000 Hours | 213 | 36 | 191 | 37 |
| Unknown/not reported | 103 | 49 | 110 | 43 |
| Totals | 4,271 | 718 | 4,288 | 688 |
| Pilot Time In Aircraft Type | | | | |
| 5- Or Less Hours | 222 | 31 | 243 | 43 |
| 6-25 Hours | 717 | 82 | 758 | 92 |
| 26-50 Hours | 572 | 85 | 529 | 63 |
| 51-100 Hours | 596 | 80 | 559 | 65 |
| 101-300 Hours | 796 | 126 | 853 | 114 |
| 301-500 Hours | 333 | 39 | 301 | 27 |
| 501-1000 Hours | 341 | 40 | 351 | 49 |
| 1001-2000 Hours | 195 | 30 | 218 | 22 |
| 2001-3000 Hours | 86 | 8 | 70 | 10 |
| over-3000 Hours | 98 | 11 | 103 | 11 |
| Unknown/not reported | 285 | 186 | 303 | 192 |
| Totals | 4,271 | 718 | 4,288 | 688 |

From: National Transportation Safety Board, "Annual Review of Aircraft Accident Data," 1975-76.

**TYPES OF FATAL ACCIDENTS—1975***

A comparison between the 1,001-3,000 hour pilot and the pilot population at large

Note: In 1975 there were 141 fatal accidents involving the 1,001-3,000 hour pilot. There were 675 fatal accidents that year.

| TYPE OF ACCIDENT (Fatals Only) | Pilot population at large—percentage of the 675 accidents | 1,000-3,000 hour pilot—percentage of the 141 accidents |
|---|---|---|
| Collison w. ground/water: uncontrolled | 17 percent | 17 percent |
| Stall/spin | 16 | 13 |
| Collision w. ground/water: controlled | 15 | 11 |
| Engine failure/malfunction | 12 | 14 |
| Collided w. trees | 9 | 8 |
| Collided w. wires/poles | 6 | 7 |
| Airframe failure | 6 | 5 |
| Collision between aircraft | 3 | 4 |
| Stall/mush | 3 | 4 |

A combination of the four categories (collision w. ground water controlled; collision with/ground water uncontrolled; collided w. trees; collided with wires/poles.):

Population at large—47 percent

1,001-3,000 hr. pilot—43 percent

*Data provided by the National Transportation Safety Board.

or incident and had been flying for 20 years.

The official "probable cause" assigned to this accident was "Unwarranted low flying," and certainly this kind of flying always offers the possibility of a serious mishap. The pilot, from long experience, evidently considered himself capable of signaling his home in this manner without jeopardizing safety. Perhaps without realizing it he had been making this pass at progressively lower altitudes. Perhaps his attention had been distracted on this particular day by something he saw in his backyard. Perhaps he had dipped his wing more than usual, in response to a request from one of his passengers who had a camera. Perhaps the excessive gross weight had contributed to the stall, or the center of gravity limits had been exceeded (it had not been possible to determine this, owing to the destructive force of impact and subsequent fire). Perhaps the plane had been caught in a sudden downdraft. . . .

The possibilities are endless, and in this case will never be determined. The point is that when an aircraft makes a circling maneuver at low altitude, the margin for error—or safety—has been shaved rather thin regardless of the pilot's skill: any combination of the above-mentioned conditions could bring about loss of control, and no opportunity to recover before striking the ground. Reducing the airspeed or dipping a wing, of course, would reduce that margin for error even further.

"Time in type" (hours of experience in the aircraft) is often considered an important safety factor, since lack of experience with a new type of aircraft can precipitate procedural errors on the part of the pilot. However, when we look at brackets of time-in-type against accident statistics, we also see a double peaked curve, with the first peak (a very dramatic one) occurring in the 6 to 25 hours grouping, and the second and largest peak occurring in the 101 to 300 hours-in-type group. Here again it appears that some change in attitude or habits takes place after a certain familiarity with a given aircraft is gained, which makes for accident susceptibility.

An accident which took place recently near Orlando, Fla. involved a 54 year-old pilot, instrument rated, who used his *Lark Commander* for lengthy trips around the state inspecting real estate property. His logbook showed some 2,700 hours, including 760 hours in the *Lark* he was flying at the time. Returning home late one afternoon, with a client on board, after being delayed on the ground by a passing squall, and adverse winds en route, he found that it was well after sundown when he approached his home field for landing. He had not flown at night for many years, and never in this aircraft, which had a red/white light selector overhead. When he turned on the instrument lights he found the cockpit flooded with a white glare that made it difficult for him to see well outside the airplane. He was already on a short final and after fumbling unsuccessfully in search of the appropriate (red) night panel switch he decided to turn off the cockpit light and land without it. Since he "knew that aircraft like the back of my hand,"

Airmail plane was about level when it first struck trees some 40 feet above the ground before crashing in dense Alabama woods (arrow).

he thought it was unnecessary to inconvenience his client by going around and taking the time to find the switch.

He felt the controls becoming mushy while he was still short of the threshold, realized that he had lost too much airspeed and added power, but crashed into a fence short of the runway. Both the pilot and his passenger were severely injured. Hours in type are important to the competency of any pilot, but they are no assurance of safety unless they include experience with all possible usages of the aircraft.

Commercial pilots who fly fixed routes day after day or night after night, such as air cargo or air mail routes, are quite likely to allow their margin for error to erode imperceptibly. On night flights, when traffic is minimal and cockpit duties light, the pilot may find it difficult to remain fully alert. In these circumstances pilots have drifted off to sleep, or allowed a course or altitude deviation to creep in, with fatal results. Flights which would be a challenge, and hence stimulating, to the low time pilot often appear routine and dull to the veteran, who may have to take special measures to insure his alertness, especially when flying alone at night.

An unfortunate accident involving an air mail pilot occurred recently near the town of Troy in central Alabama. Although only 24 years-old, the pilot had already logged nearly 2,000 hours and held a commercial certificate with multi-engine and instrument ratings. He had acquired 641 hours in the company's twin Beech 18, most of which had been accumulated flying a round robin course from Dothan, Ala., and Memphis, Tenn. On the night of the accident the mail truck appeared as usual on the ramp at 7:30 p.m. and the young pilot took off 15 minutes later. His itinerary called for a stop at Montgomery, another at Birmingham, then over the northeastern corner of Mississippi to Memphis, then back to Birmingham, Montgomery and finally return to Dothan. The flight required a little under five hours.

Battered aircraft came to rest 216 yards past the first impact.

The early phases of the flight that evening went without incident, as the pilot deposited and picked up mail at each of the five stops. He supervised the loading of mail, noted the weight marked on each bag, and made the proper weight and balance computation. It was on the very last leg of the flight that the tragedy occurred—the 100 mile flight from Montgomery to Dothan, which usually took about half an hour. Departure from Montgomery was at 3:24 a.m.

Official records indicate that the pilot did not request a weather briefing from the National Weather Service at Montgomery. Available to him would have been the area forecast issued by the NWS at 7:40 p.m. of the previous day and valid until 2:00 p.m. of the day of the accident. This included the following information:

*Significant clouds and weather. Over area north and east of Dothan-McComb-Dyersburg line. No significant clouds or weather expected except for patches, ceilings 1,500 broken, top 3,000, visibility 3 miles, fog, smoke, haze forming after 0400 along southern and western portion this area.*

The pilot did not file a flight plan.

At about 3:50 a.m., some 26 minutes after the takeoff from Montgomery, a number of people near Troy, Ala., were awakened from sleep by the sound of an aircraft flying low overhead. Troy is about half-way between Montgomery and Dothan, and it is surrounded by dense stands of tall pine trees. One witness said the aircraft was "unusually low and making very loud noises," and he was afraid it would hit his house. Another witness saw the rotating beacon as the Beech went over her house. One witness who lives about a quarter of a mile from the crash site stated:

*"I was awakened by a loud and unusual noise. I got out of bed, went outside, and walked around my house. I was not able to see or hear anything unusual. As I walked around the house I could see a heavy fog; however I could see the moon through the fog."*

The wreckage of the Beech—and the deceased pilot—was discovered 2⅞ miles east of Troy.

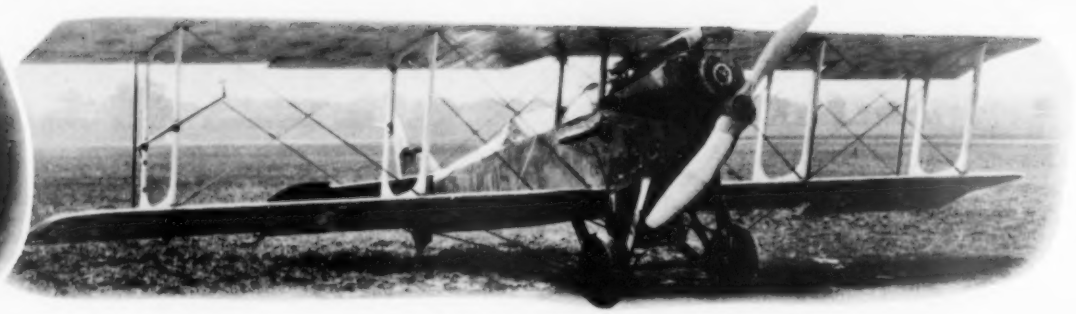
The subsequent NTSB investigation showed that the aircraft had initially hit the trees at the 40 foot level on a magnetic heading of 068. The aircraft was in an approximately *level attitude* at the time of contacting the first group of trees. The Beech then continued airborne over an open field straight ahead for 120 yards, before hitting a group of trees at a slightly lower level than the original impact. The aircraft's crash path next changed to 080 degrees for an additional 96 yards.

A detailed examination of the aircraft wreckage revealed no malfunction which could have contributed to the accident.

A pathological and toxicological examination of the pilot's body did not reveal any physical impairment which would have affected his duties in the cockpit.

Whether the pilot had allowed the aircraft to descend slowly in the dark while he worked on his forms, to save time after landing, or whether he had momentarily closed his eyes will never be known. Apparently he had elected on this last leg of his flight to slip into Dothan underneath the low clouds, rather than take the time to file and fly an instrument flight plan. He had flown from Montgomery to Dothan at night hundreds of times without incident, but on this particular night the combination of fog, low altitude, the lateness of the hour, and perhaps other personal factors of which we have no knowledge brought fatal consequences.

The more experience a pilot gains, the greater his temptation to reduce his margin for error. It is important to remember, as the hours pile up, that unless you keep a good safe margin at all times, you are like the (late) great Wallenda on the high wire: you are at the mercy of the unexpected. The slightest mistake can be fatal.



Famous
**FLYERS**

# Macready and the Icicle Crown

Half a century ago a solitary pilot in the open cockpit of an experimental biplane, his hands so numb with cold that he had to move the controls with his wrists, struggled to keep his aircraft climbing at six miles above the earth. Today, at his mountaintop ranch near Yosemite National Park in California, where he has an unimpeded view of the sky all around, John Macready follows with interest the interplanetary travels of men and spaceships—with the personal satisfaction of knowing that his trailblazing efforts in 1926 had opened the upper atmosphere to aviation.

Born in San Diego in 1887, the son of a newspaper owner and mining entrepreneur, young John was educated at Stanford University and destined for a career in business. But the American entry into World War I in 1917 changed all that. Shortly after his enlistment in the cavalry, Macready began to hear interesting things about the newly formed Army Air Service. He managed a transfer and was trained as a pilot, to his immense satisfaction, but he impressed his superiors so much with his ability that he was held out of combat to become an instructor in this country.

Fair-haired and blue-eyed, of medium height and build, Macready was a fun-loving youth with a likeable manner, but in the cockpit he was all seriousness. He liked to feel that he could get everything possible out of any aircraft, and was continually learning by experimenting in flight, but he took no unnecessary chances and came down hard on students who were reckless.

At the close of the war Lt. Macready was sent to McCook Field in Dayton, Ohio, where he became chief test pilot for the Air Service. In this post-war era of surplus pilots and aircraft, record setting was the order of the day, and the Army encouraged its young flying officers like Macready to keep aviation in the public eye. A Martin bomber commanded by Col. R. L. Hartz flew around the boundaries of the forty eight states for some 9,000 miles. Lt. William Coney flew a DeHaviland 4 from San Diego to Jacksonville, Fla., in 24 hours (with landings enroute for fuel). Lt. Jimmy Doolittle flew the same route from east to west, landing only once (in San Antonio) and shaving 41 minutes off the record.

Macready got into the act in October of 1922 when he and Lt. Oakley Kelly attempted to accomplish the first transcontinental non-stop flight, in a Fokker single engine monoplane T-2. They planned to fly west-east from San Diego, to take advantage of prevailing winds, but on their first effort the heavily laden plane was unable to climb over the southern California mountains, and the passes were shrouded in fog. On the second attempt they got as far as Indianapolis, where they were forced down by dwindling fuel and an overheating (water-cooled) engine—they poured coffee and cold soup into the leaky radiator trying vainly to remain aloft.

The two lieutenants then reversed direction and took off from New York, experienced little trouble crossing the western mountain ranges with a lightened fuel load, and landed successfully in San Diego after a record-setting 26 hour and 50 minute flight. One of Macready's admirers after the flight was a young college girl from Detroit, whom he married in Los Angeles after a whirlwind courtship.

Macready became interested in high altitude flights after observing the efforts of his friend Major Robert Schroeder. The Army wanted an aircraft that would fly high enough in the stratosphere to map enemy territory, but very little was known about sustained flight above 30,000 feet. In 1920 Schroeder had remained at 33,000 feet for over an hour, using a LePere experimental aircraft powered by a Liberty 12 cylinder engine. Lack of oxygen had been counteracted by means of a crude supercharger and an oxygen mask. However, after an hour the oxygen flow to his mask malfunctioned, he became unconscious, and revived barely in time to pull out of a high-speed dive.

The Army needed proof that a high altitude aircraft was feasible before Congress would appropriate funds for developing this type of aircraft. In 1923 Macready took over the test project. With the help of Adolph Berger, a mechanic at McCook Field, he made progressive improvements in the supercharging equipment. One of the early problems stemmed from the heat generated by the supercharger in flight, which damaged parts of the engine and on one occasion ignited the engine oil and started an inflight fire. Macready was luckily able to extinguish it by diving the aircraft.

Oddly enough, on this flight he was accompanied in the LePere by an observor, one Roy Langham, who was understandably agitated by all that was going on. When Macready finally levelled off over the countryside near Dayton and pointed down, Langham pulled on a parachute and started over the side, thinking it was all up with the plane. Macready just managed to restrain

him. A year later Macready himself made an emergency parachute jump (from another aircraft). It was only the second successful emergency jump from an airplane on record, and the first accomplished at night.

Once the supercharger problem was solved, with an inter-cooler, the human factors had to be dealt with. At eight miles above the earth—Macready's targeted flight level—the outside temperature could drop down to 80° (F.) below zero. Early versions of electrically heated flight suits were being tried, but Macready considered them less dependable than three layers of woolen underwear, under a heavily padded leather-covered suit of wool and down. He also wore fur-lined gloves, fleece-lined moccasins over his boots, and a leather head mask that completely covered his face.

Physically Macready was in excellent shape for high altitude flight. He had wrestled and boxed in college, and had become a self-trained nutritionist and daily jogger long before such activities received medical support. Nevertheless, when he first began flying above 30,000 feet he found that ". . . my fingers became so stiffened that they were totally useless, making it necessary to control the plane with the base of the hands or the wrists . . ." Part of the problem was due to the design of the open cockpit, which was not reinforced against the cold and in fact allowed too much of the pilot's body to feel the sting of the prop blast. The chill factor—in the order of 200° F. below zero—caused excruciating pain.

Some insulation was worked in around the cockpit, and engine heat was piped in (available during climb or level flight only). Goggles were coated with a gelatin which prevented fogging down to 60° F. below zero. For the rest, it was a matter of grin and bear the pain and the uncertainty.

Between 1923 and 1926 Macready made 50 flights to altitudes above 30,000 feet, including 10 flights above 35,000 feet. His final flight, on January 19, 1926, reached an official altitude of 38,704 feet, an international record. The stage was now set for a new generation of high flying aircraft, with an enclosed and eventually pressurized cockpit, which would enable scientists to penetrate the mysteries of upper space, and allow man to set foot upon the moon. For winning the "Icicle crown," Macready received the Mackay Trophy for the outstanding military contribution three years running.

Macready retired from the Air Service in 1928, worked briefly for General Motors and then became the aviation director for Shell Oil in California. He returned to active military service as a colonel during World War II, and later retired for good to a ranch in Mariposa, Calif.

Still hale and hearty at age 90, and enjoying life with his wife of 55 years, Nelliejay, John Macready is a living contradiction to the notion that there is no such thing as an old, bold pilot. ■

# BRIEFS

MASK SUBSTITUTES? Pilots have inquired as to whether a new low altitude oxygen inhalator, using a nasal tube (called a Cannula) instead of a face mask, has been submitted to FAA for approval. The answer is negative. The low altitude oxygen inhalator is offered for use at altitudes where FAA does not require oxygen. FAR 91.32 prescribes the altitudes at which approved oxygen systems must be used to be FAA approved, the mask must cover both the nose and mouth. The low altitude oxygen inhalator is not approved for flight at or above altitudes requiring oxygen.

WINDS—HOW MUCH AND FROM WHERE? A clarification in the latest AIM reminds pilots that wind direction issued by air traffic facilities is magnetic; and wind speed is given in knots. All pilots—particularly instructors—should check AIM regularly for pertinent reminders of current usage.

WARWICK ROTARY AIR FAIR. Because of expected heavy traffic and a wide mix of aircraft including jets and helicopters, special air traffic procedures will be used during the "1978 Warwick Rotary International Air Fair" at Quonset State Airport, North Kingstown, Rhode Island, August 18, 19 and 20. "Beaver Tail VFR Special Arrival Procedures" will be in effect during high density traffic periods, and in addition the airport will be closed for part of each day for flight and aerobatic demonstrations. Details about the special procedures are in Notices to Airmen (formerly Part 3A of AIM) or contact an FSS or the Providence Air Traffic Control Tower (Warwick, R.I. 02886). IMPORTANT: All inbound pilots should monitor ATIS, 115.6 at least 30 miles out for latest landing information.

HOT CASH. A report from British Airways alerts air travelers and crew members that if they carry small transistor batteries in pocket or purse, they should be segregated from metal to avoid possible shorting. In the incident in question, an airliner was three hours into the flight when a female passenger complained to a steward that her purse was getting very hot. Investigation revealed that a smoking nine-volt battery in her purse was the source of the heat, and that some coins in her purse were also quite hot to the touch. Seems the passenger had removed the battery from a portable radio and dropped it into the coin compartment of her purse. The battery-short followed. Battery manufacturer confirmed that a fresh nine-volt battery —if shorted by a coin—could generate enough heat to cause a fire, or cause the battery to explode.

ENGINE POWER LOSS, currently the most common type of general aviation aircraft accidents, is the subject of a new advisory circular based on a three-year review of such accidents by FAA. The various causes of power loss and means of avoiding them are discussed in AC No. 20-105, "Engine Power-Loss Accident Prevention," available free from the DOT/FAA Distribution Unit, M-443.1, Washington, D.C. 20590.

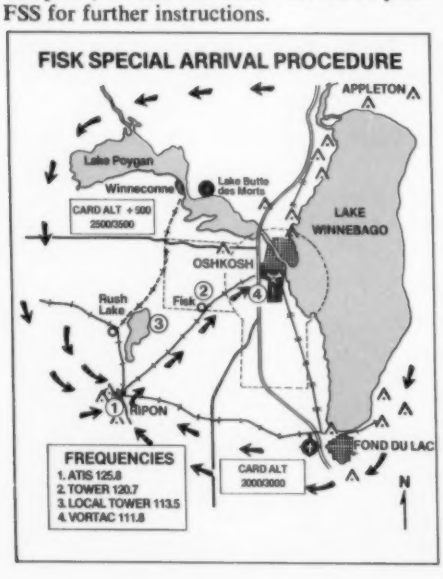
**AUTHORIZED INSPECTOR.** Susan Dusenbury of Florence, S.C. is the first woman to be granted Inspection Authorization (which permits her to oversee annual inspections of aircraft). In addition to her A & P certificates Mrs. Dusenbury has earned single and multi-engine commercial pilot certificates, with instrument and instructor ratings. The young lady worked in maintenance to help pay for flight instruction, while attending Winthrop College. She now does all the "annuals" for Florence Air Lines, and competes in aerobatics.

## Special Oshkosh Procedures

Special new air traffic procedures (different from previous years) will be in effect for Wittman Airport, Oshkosh, Wis. for the period of the Experimental Aircraft Association Annual Fly-In, July 29 to August 5.

During the Fly-In a minimum of two-way voice communication is used, with VFR pilots receiving many of their instructions by monitoring ATIS, the tower or ground control, and watching flagmen on the ground. During busy periods special arrival procedures will be used (see diagram).

Special procedures will also be in effect for EAA show aircraft, which will be making local flights and fly-bys—generally on a different runway and at a different altitude from itinerant aircraft—and for aircraft on instrument flight plans. (IFR flight plans must be filed in advance; no airfiling will be accepted.) Check Notice to Airmen or your FSS for further instructions.




① *Pilots should monitor ATIS on 125.8 when 35 miles out to determine if the "Fisk Special Arrival Procedure" is in use, in which case all aircraft should fly first over the town of Ripon (18 miles from Oshkosh). Call in on 120.7 over Ripon, then fly up the southeast side of the RR tracks toward Fisk. ALTITUDES: To avoid head-to-head traffic over Ripon, when approaching from south and east fly at cardinal altitudes (2000, 3000 MSL) and from north and west fly at cardinal-altitudes-plus-500 (2500, 3500 MSL). After passing Ripon descend to one of two altitudes, depending on the speed you choose to fly: 100 mph at 1800 MSL, or 130 mph at 2500 MSL. Exercise extreme caution during descent. Remain at this altitude and speed—including during holding, if any—until in the Wittman landing pattern.*

② *Fly past Fisk only when cleared to do so. Switch to Tower, 118.5 when instructed, not before.*

③ *When necessary, fly holding pattern from Fisk counterclockwise (left turns) around Rush Lake, staying northwest of RR tracks, back to Fisk.*

④ *When cleared to pass Fisk, proceed to Witman Field and land as instructed by Tower. (Itinerants will generally use runway 9 or 27). Close flight plan with Green Bay FSS: Transmit 122.1, listen on OSH VOR, 111.8. After landing, turn off runway onto grass as soon as possible, as indicated by flagmen.*

⑤ *Departing pilots are asked to monitor ground control while taxiing, and the tower after takeoff, but not to call either facility except in emergency.*

*Note: The airport will be closed to all operations except scheduled carriers from 1600 to 1845 daily for flight and aerobatic demonstrations; runways 4/22 and 13/31 will be closed from July 24 to August 10.*

## TV Weather Coming Back

The chances for pilots to be able to get aviation weather information via their television sets improved greatly recently when Administrator Langhorne Bond announced that FAA would provide half the funding needed to produce such a program. The balance of the funds are being raised from private aviation.

The new program, which could begin broadcasting the latter part of this year, will air for 15 minutes each weekday morning—generally at 6:45 a.m. local time—providing information compiled by the National Weather Service. The televised weather service is not intended to replace the recommended personal pre-flight weather briefing, but is expected to be of considerable aid to pilots for planning purposes.

## FAR 77 Proposals Invited

A public invitation to submit proposals to change FAR Part 77, "Obstacles Affecting Navigable Airspace" has been issued by FAA as the first step in a new Regulatory Review program.

FAR Part 77 establishes standards for determining airspace obstructions; sets requirements for notice of proposed construction or alteration; and provides for studies of obstructions to determine their effect on air safety and for public hearings.

Proposals must be submitted by August 7, 1978 to FAA, AAT 200, Washington, D.C. 20591, after which they will be compiled and distributed for public comment.

Pertinent proposals will then be included on the agenda of the Review Conference, scheduled to be held in the Washington, D.C. area in early December.

## New Airworthiness Alerts

Starting this month all FAA Certificated Repair Stations and mechanics holding an Inspection Authorization will begin receiving a new FAA monthly publication, "General Aviation Airworthiness Alerts." The "Alerts" will focus on aircraft problems reported under the FAA Service Difficulty reporting program.

Repair Stations and holders of Inspection Authorization certificates will receive the monthly Alert automatically—no application is required on their part.

## New Maintenance Manual

A standardized airplane maintenance manual developed by the General Aviation Manufacturers Association (GAMA) is expected to be widely adopted throughout the industry. Until now each general aviation manufacturer has used individually designed manuals, with the scope and content varying from company to company. A uniform format, similar to that used for air carrier aircraft, will assure more uniform maintenance standards and perhaps lower owner costs.

### • PBY Squadron Reunion

I wonder if any of your readers were members—or know members—of Navy Patrol Squadron EIGHTY FOUR, a PBY squadron of WWII? I am trying to reach as many former members of that group as possible for a reunion to be held at Pensacola, Florida, October 27-29, 1978. Interested persons can get details by writing to me.

Alfred W. Jones
P. O. Box 3195
Meridian, Miss. 39301

### • Who Is Calling Please?

I have recently been using the Voice Response System (VRS) over my telephone for flight briefing. (See FAA General Aviation News, March 1978). I find this system very satisfactory, particularly when there are no big areas of bad weather en route.

I feel, however, that there is one thing badly missing in this system. Upon answering a call, I suggest that the computer immediately ask for the aircraft number, as is done at flight service stations. In every accident report I have read, the question of whether or not the pilot received a preflight briefing is a significant part of the investigation.

Other than this one possible fault I feel that the system is very good and should be duplicated around the country.

James C. Rainer, III
West Memphis, Ark.

*Comments (pro and con) on the VRS are being collected by FAA for evaluation before the system is widened, and we will forward your letter to those in charge. Bear in mind, however, that the VRS—which cannot provide as much information as the FSS—is not intended to replace the complete preflight briefing (in person or by phone) but rather to provide data for go/no-go decisions and preliminary flight planning.*

### • The Right Ratio

You had an article "Cabin Pressure vs. Atmospheric Pressure" in your October 1977 issue. In it you give the nitrogen/oxygen ratio in air as five to one. This is incorrect—it should be four to one (80% nitrogen and 20% oxygen). I imagine you have already received many letters on this subject, but in case you have not, I thought I would call attention to it.

Frank H. Ford
San Jose, Costa Rica

*Twenty percent oxygen and 80% nitrogen does make a ratio of four to one. The rest of our usually eagle-eyed readers missed this typographical error, and yours was the first comment we received.*

### • Dear Pappy

I enjoyed your blurb on EE-FUSS and learned something too!

Maybe you could persuade your friends that contribute to the FAA GAA News to put their names on the things they write. It makes it easier for us civilians to relate to you all (for better or worse).

Don Rosborough
Aston, Pa.

*Glad you enjoyed the EE-FUSS piece. Regarding the name-signing of articles, it is my understanding that government policy gives those pencil-pushers a choice—either they get paid for their work or they get a byline. So far nobody has chosen the byline. T'aint modesty, believe me.* *Pappy.*

### • Going Down?

I just got my May issue and was reading "Dirty Birds" when I saw the picture of the gentleman cleaning the glass casing of his VOR receiver. If I'm not mistaken, the vertical speed indicator to the immediate left is indicating a descent. Here is my question: If the pilot notices this situation before flight, what should he do about it?

Steve Carr
Blacksburg, Va.

*The needle should read zero on the ground. As noted in the FAA Instrument Flying Handbook, most vertical speed indicators can be adjusted to a zero reading by turning a screw on the lower left corner of the instrument case. If this adjustment cannot be made, you should allow for the error when interpreting the indications in flight, and arrange to have the instrument repaired by an approved instrument repair shop.*

### • Obstacles That Loom in the Night

While I found your article "Night Flight" informative and of value from a safety standpoint, I believe you have painted too bleak a picture of the hazards to air navigation presented by unmarked ground objects.

I was not surprised (as I was expected to be) that FAA has "no authority to require lighting or other marking." But what you fail to mention is that Congress has placed that authority in the hands of the Federal Communications Commission (FCC), through the Communications Act of 1934, at least as far as radio transmitting towers are concerned. The FCC, in close cooperation with FAA, places requirements concerning lighting and painting of antenna towers on the licenses it issues and regularly inspects the towers to assure continued compliance.

FCC rules also require that flight service stations be advised when beacons are inoperative in order that they may advise pilots in the local area. While I agree that voluntary lighting of many structures continues at a high level, surely you would not have us believe that every radio station in the U.S. with a tower in excess of 200 feet has properly painted and lighted it because of his personal concern for the aviation consumer!

James C. McKinney
Burke, Va.

*It is true that lighting and marking on broadcast towers is required by FCC. The night-flying pilot must still be alert for other types of airspace obstacles (buildings, hills, signs, etc.) and, if they have not checked current NOTAMS, for broadcast towers with inoperative lights.*

**FAA GENERAL AVIATION NEWS** welcomes comments from our readers. No anonymous letters will be used, but names will be withheld on request. Address: FAA GENERAL AVIATION NEWS, AFS-807, Washington, D.C. 20591.

### • Coast Guard Aviation History

I am compiling data for a book on the History of U.S. Coast Guard Aviation and would appreciate hearing from former airmen. I need items regarding World War II and later. I will return any photos loaned.

W. M. O'Rourke
162 W. Beech St.
Long Beach, N.Y. 11561

## INSTRUMENT CORNER

### • Altimeter Settings Revisited

I disagree with your March "Forum" answer regarding the proper IFR preflight procedure for setting altimeters. You advised the reader to use the altimeter setting reported by the tower—not to change it, even though the altimeter does not read the correct field elevation on the ground (within certain limits). You state, "Changing the setting so the altimeter reads the field elevation could result in a compounded error in the air."

I think the opposite is true. If you do *not* change the altimeter, you start off with an error that you keep for the entire flight, all the while adding any other errors that may accrue as you fly. I say you should correct the altimeter on the ground to read field elevation, note the correction it takes, and apply that correction to all subsequent altimeter settings received during the flight. Several authorities agree, including FAA's Instrument Flying Handbook (AC 61-27) and the USAF All-Weather Flight Manual. I'd be interested in knowing the authority for your answer.

Thomas O'R. Gallagher
Sayville, N.Y.

*Earlier FAA Instrument Flight Handbooks did advocate applying a correction to the altimeter setting during a flight, but this procedure is now in disuse. Neither Army or Air Force Flight Manuals currently recommend this procedure, nor does FAA. The latest FAA Instrument Flying Handbook (AC 61-27B) states that if the error is plus or minus 75 feet, the accuracy of the instrument is questionable, and an appropriately rated repair station should be consulted.*

*Repeated altimeter corrections are no longer taught because we now know that altimeter errors do not remain constant at all altitudes. A 60-foot error on the ground could lessen, disappear, or reverse itself at a different pressure or altitude. By continually cranking in corrections based on a previously noted variation you have as much chance of compounding the error as of removing it. The only way to determine what the error will be at various altitudes is to have the instrument checked by the bench-test method which is the basis for the biennial altimeter inspection—which is mandatory if the airplane is used for instrument flight.*

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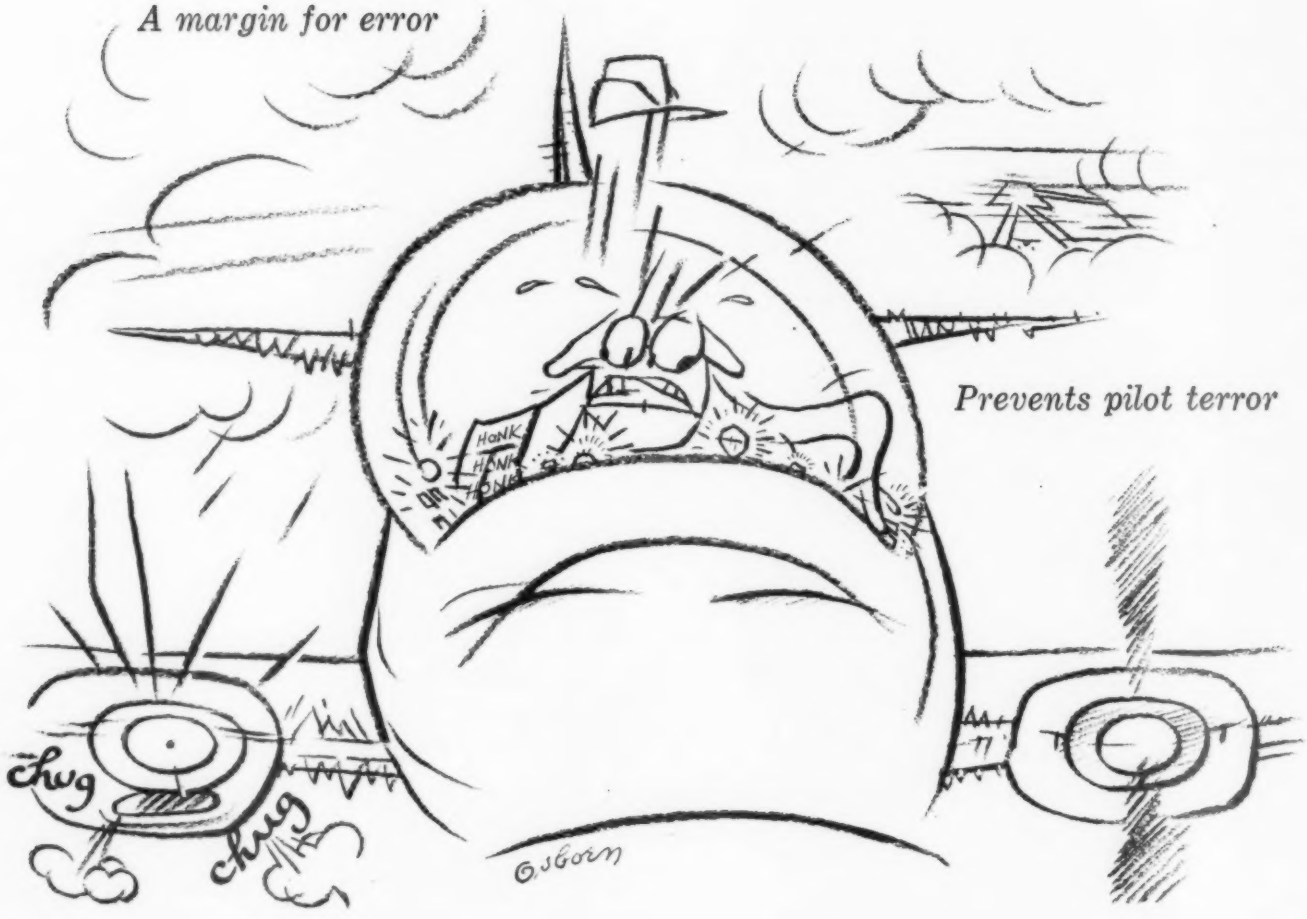
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